

P6121a

10/005,494

RESPONSE UNDER 37 CFR §1.312

AMENDMENTS TO CLAIMS:

The listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A display driver apparatus for driving a display comprising a plurality of pixels, each of which is located at a respective one of a plurality of intersections formed by an arrangement of a plurality of common electrodes positioned generally parallel to one another and extending in a first direction and one of a plurality of segment electrodes positioned generally parallel to one another and extending in a second direction, wherein an orientation state of an electro-optical material of each pixel is controlled by a voltage applied to it, the display driver apparatus comprising:

a common electrode drive device that supplies a scanning signal for simultaneously selecting L common electrodes, where L is a natural number and $L \geq 2$;

a segment electrode drive device that supplies a data signal to each of the plurality of segment electrodes;

a single display data RAM from which N-bit display data are simultaneously read out for the L pixels at the respective L intersections that each of the plurality of segment electrodes form with the L common electrodes that are simultaneously selected, the single display data RAM including a memory address space in which the display data is organized according to the groups of L pixels, wherein for each of the L pixels in a particular group, L upper bits, one for each of the L pixels, are stored contiguously in ~~the-a~~ first sub-group and L lower bits, one for each of the L pixels, are stored contiguously in ~~the-a~~ second sub-group adjacent to the first sub-group; and

a decoder having a plurality of sub-decoders and that divides the N-bit display data simultaneously read out from the single display data RAM into (N/L) -bit data units, decodes the (N/L) -bit data units, and outputs a voltage to be applied to each of the segment electrodes;

wherein

P6121a

10/005,494

RESPONSE UNDER 37 CFR §1.312

in a first mode, the N-bit display data provides 2^A display gradients for each of L pixels on each of the segment electrodes, where $A = (N/L) \geq 2$, and an output voltage is output from a selected one of the sub-decoders in each of A divided periods of one horizontal scanning period, and

in a second mode, the N-bit display data provides 2^B display gradients for each of $n \times L$ pixels on each of the segment electrodes, where $1 \leq B = A/n$ and $n \geq 2$, and an output voltage is output from a selected one of the sub-decoders every n horizontal scanning periods.

2. (Previously Presented) A display driver apparatus according to claim 1, further comprising a terminal that selects the first mode or the second mode.
3. (Previously Presented) A display driver apparatus according to claim 1, further comprising an interface circuit for inputting the N-bit display data from an external source, wherein a mode selection signal for selecting the first mode or the second mode is input through the interface circuit.
4. (Original) A display driver apparatus according to claim 1, wherein in the first mode the N-bit display data provides four display gradients for each of L pixels on each of the segment electrodes.
5. (Original) A display driver apparatus according to claim 4, wherein in the second mode the N-bit display data provides two display gradients for each of $2L$ pixels on each of the segment electrodes.
6. (Original) An electro-optical device comprising a display driver apparatus according to claim 1.
7. (Original) An electronic device comprising an electro-optical device according to claim 6.
8. (Currently Amended) A method for driving a display comprising a plurality of pixels, each of which is located at a respective one of a plurality of intersections formed between one of a plurality of common electrodes and one of a plurality of segment electrodes, wherein an orientation state of an electro-optical material of

P6121a

10/005,494

RESPONSE UNDER 37 CFR §1.312

each pixel is controlled by a voltage applied to it, the display driving method comprising the steps of:

supplying a scanning signal from a common electrode drive device for simultaneously selecting L common electrodes, where L is a natural number and $L \geq 2$;

supplying a data signal to each of the plurality of segment electrodes;

simultaneously reading from a single display data RAM N-bit display data for each of the plurality of segment electrodes, the single display data RAM having an address space in which the display data is organized according to the groups of pixels defined by the commonly selected electrodes and respective segment electrodes and bit positions for pixels in a particular group, the display data being further organized such that, for each of L pixels in a particular group, L upper bits, one for each of the L pixels, are stored contiguously in the a first sub-group and L lower bits, one for each of the L pixels, are stored contiguously in the a second sub-group adjacent to the first sub-group; and

dividing each read N-bit display data into (N/L) -bit units, decoding the (N/L) -bit data units, and output a voltage to be applied to each of the segment electrodes;

wherein

in a first mode, the N-bit display data provides 2^A display gradients for each of L pixels on each of the segment electrodes, where $A = (N/L) \geq 2$, and an output voltage is output in each of A divided periods of one horizontal scanning period, and

in a second mode, the N-bit display data provides 2^B display gradients for each of $n \times L$ pixels on each of the segment electrodes, where $1 \leq B = A/n$ and $n \geq 2$, and an output voltage is output every n horizontal scanning periods.

9. (Previously Presented) A display driving method according to claim 8, further comprising the steps of inputting the N-bit display data from an external source,

P6121a

10/005,494

RESPONSE UNDER 37 CFR §1.312

and inputting a mode selection signal for selecting the first mode or the second mode from an external source.

10. (Original) A display driving method according to claim 8, wherein in the first mode the N-bit display data provides four display gradients for each of L pixels on each of the segment electrodes.

11. (Original) A display driving method according to claim 10, wherein in the second mode the N-bit display data provides two display gradients for each of 2L pixels on each of the segment electrodes.

12. (Canceled)

13. (Canceled)